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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,715	03/11/2005	Hae-Yong Choi	CHOI3029/JEK	9159

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EXAMINER

DO, ROBERT C

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 11/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/527,715

Applicant(s)

CHOI, HAE-YONG

Examiner

Robert C. Do

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/28/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 9 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 2, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spector (US 4,323,301) in view of Murayama et al. (US 2003/0174396).

Regarding Claim 1 and 10, Spector teaches the following claimed elements:

- A transparent material made of one selected from the group consisting of polyester, acryl and polycarbonate. (Column 1, lines 30-35 teach of a transparent material used for screens made of acrylic.)
- Wherein a content and a particle size of the light-refracting material and a thickness of the film screen mutually interact so that an image formed on the film screen by means of light projected from a projector is dividedly displayed on front and rear surfaces of the film screen, thereby displaying

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the image formed thereon through the front and rear surfaces thereof and eliminating a hot spot. (Column 2, lines 19-24, teach of the screen being used as both a rear and front projection screen, also see Fig. 6)

Spector does not teach:

- A light-refracting material, made of silica, contained in or deposited on the transparent material.
- The film screen is divided into front and rear film sub-screens centering on a transparent plate under the condition that the total thickness of the film screen, the content and the particle size of the light-refracting material in the film screen satisfy the allowable ranges.

However, Murayama et al. teaches:

- A light-refracting material, made of silica, contained in or deposited on the transparent material. (Column 3, lines 5-10 disclose light diffusing material made of silica)
- The film screen is divided into front (Fig. 1, 1) and rear (2) film sub-screens centering on a transparent plate under the condition that the total thickness of the film screen, the content and the particle size of the light-refracting material in the film screen satisfy the allowable ranges.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the light-refracting material made of silica as taught by Murayama et al. to the screen of Spector for the purpose of dispersing the light incident on the screen giving the screen better light distribution throughout the screen. It would

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also have been obvious to one of ordinary skill in the art at the time the invention was made to divide the screen into two parts, a front and rear, for the purpose of making the screens' manufacturability greater.

Regarding Claim 2, Spector's teachings are discussed above.

Spector does not teach:

- The specific range of content (C) of the light-refracting material in the film screen.

However, Murayama et al. teaches:

- The specific range of content (C) of the light-refracting material in the film screen. (Murayama teaches that the material content can be in the range of 50 to 200 ppm.)

It would have been obvious to one of ordinary skill at the time the invention was made to provide a specific range of content for the purpose of dispersing incident light distributing the brightness uniformly. Spector as modified by Murayama does not teach specific content of light-refracting material is 800ppm to 90,000ppm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the range of the content of light-refracting material from 800ppm to 90,000ppm for the purpose of optimizing the distribution of light for better image quality, since it has been held that where the general conditions of a claim are disclosed are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Further, Spector does not teach:

- The particle size (B) of the light-refracting material is in the range of 0.1 μ m to 50 μ m.

However, Murayama et al. teaches:

- The particle size (B) of the light-refracting material is in the range of 0.1 μ m to 50 μ m. (Column 4, lines 41-45 teach of particles of size 1 to 12 μ m falling within claimed range.)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the light-refracting particles the size within a range of 0.1 μ m to 50 μ m as taught by Murayama et al. to the screen of Spector for the purpose of having light refracting particles large enough to refract light giving off a better uniform brightness throughout the screen.

Spector also does not teach:

- The thickness (A) of the film screen is in the range of 10 μ m to 400 μ m.

However, Murayama et al. teaches:

- The thickness (A) of the film screen is in the range of 10 μ m to 400 μ m.
(Column 2, lines 34-39, teach that the thickness is 100 μ m or less which is within the claimed range)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made add the light-refracting material made of silica as taught by

Murayama et al. to the screen of Spector for the purpose of dispersing the light incident on the screen giving the screen better light distribution throughout the screen.

2. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spector as modified by Murayama et al. further in view of Shopp (US 5,274,499).

Regarding Claims 3 and 4, Spector as modified by Murayama et al. is discussed above.

Spector as modified by Murayama does not teach:

- A rotary rod is installed at an upper end of the film screen.
- The film screen is rolled up into and down from the rotary rod, and serves as a rolled-type screen.
- The film screen is fixed to a transparent plate so that the film screen can be transferred upward and downward by means of a rotary rod.

However, Shopp teaches:

- A rotary rod (Fig. 2, 34) is installed at an upper end of the film screen.
- The film screen is rolled up into and down from the rotary rod, and serves as a rolled-type screen. (Column 1, lines 22-25)
- The film screen is fixed to a transparent plate (Fig. 1, 23) so that the film screen can be transferred upward and downward by means of a rotary rod.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the rotary rod of Shopp for the purpose of rolling the

screen making it easy for transport. It also would have been obvious to one of ordinary skill in the art at the time the invention was made to fix a transparent plate to the film screen for the purpose of keeping the screen straight while moving upward and downward using the rotary rod.

3. Claims 5 and 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spector as modified by Murayama et al. further in view of Tanaka et al. (US 2003/0107803).

Regarding Claim 5, Spector as modified by Murayama et al. is discussed above. Spector as modified by Murayama does not teach:

- The film screen is attached to a glass window so that viewers at outdoor and indoor places can view the film screen through both surfaces thereof.

However, Tanaka et al. teaches:

- The film screen is attached to a glass window so that viewers at outdoor and indoor places can view the film screen through both surfaces thereof. (Paragraph [0030] and Fig. 1 and 2, show a windowpane of a building).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the window of Tanaka et al for the purpose of attaching the screen to a building to project the image for people outdoors to see.

Regarding Claim 7, Spector as modified by Murayama et al. is discussed above. Spector as modified by Murayama does not teach:

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- A reflection plane is formed on one surface of the film screen so that the film screen serves as a reflection-type screen without the generation of a hot spot.

However, Tanaka et al. teaches:

- A reflection plane (Fig. 4, 2r) is formed on one surface of the film screen so that the film screen serves as a reflection-type screen without the generation of a hot spot. (Paragraph [0033]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add reflection plane of Tanaka et al for the purpose of eliminating hot spots so that the picture is uniformly bright in all areas.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spector as modified by Murayama et al. further in view of Piepel et al. (US 2003/0163367).

Regarding Claim 6, Spector as modified by Murayama et al. is discussed above.

Spector as modified by Murayama does not teach:

- A projector is installed under the film screen and a reflecting mirror is installed in front of the projector to prepare one video system so that viewers can view an image displayed on the front and rear surfaces of the film screen.

However, Piepel et al. teaches:

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- A projector (Fig. 10, 153) is installed under the film screen and a reflecting mirror (152) is installed in front of the projector (153) to prepare one video system so that viewers can view an image displayed on the front and rear surfaces of the film screen. (When using the film screen as taught by Spector as modified by Murayama it can be displayed on the front and rear surfaces.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the projector and mirror of Piepel et al for the purpose of showing motion pictures on the screen while the mirror will allow the projector to be close to the screen allowing for a compact space that the unit will take up.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spector as modified by Murayama et al. further in view of Yamaguchi (US 2001/0005243).

Regarding Claim 8, Spector as modified by Murayama et al. is discussed above.

Spector as modified by Murayama does not teach:

- The light-refracting material of the film screen is a light-transmitting material made of titania (TiO₂).

However, Yamaguchi teaches:

- The light-refracting material of the film screen is a light-transmitting material made of titania (TiO₂). (Paragraph [0033])

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the light refracting material out of titania as taught by

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Yamaguch for the purpose of diffusing light for better brightness distribution on the display screen.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Do whose telephone number is (571)272-1387. The examiner can normally be reached on Monday Through Friday, 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571)272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RCD



DIANE LEE
SUPERVISORY PATENT EXAMINER